

--	--	--	--	--	--	--	--	--	--

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2018/2019

EME3066 – CAD/CAM
(ME)

19 OCTOBER 2018
3.00 pm - 5.00 pm
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 3 pages including cover page with 4 Questions only.
2. Answer **ALL FOUR** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please write all your answers in the Answer Booklet provided.

Question 1

(a) Classify the surface modelling system and describe how Bezier curves and surfaces are constructed in the surface modelling with sketches.

[10 marks]

(b) Explain the node locations, element type and shape requirements in finite element method and illustrate one dimensional, two dimensional, and three dimensional types of elements with two examples each.

[5 marks]

(c) Illustrate the steps required to design the solid model of parts listed in Fig. Q1(c).

[10 Marks]

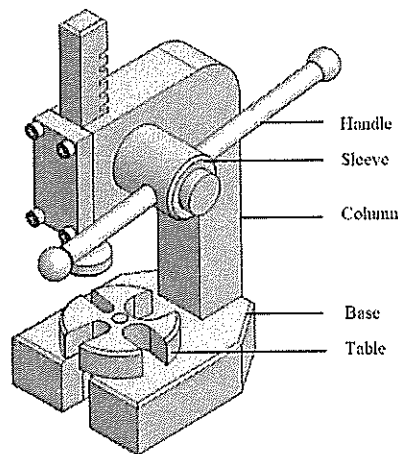


Figure Q1(c)

Question 2

(a) Briefly describe the general process flow of Rapid Prototyping (RP) cycle.

[10 marks]

(b) Explain the Laminated Object Manufacturing (LOM) method of solid based rapid prototyping with a sketch.

[15 marks]

Continued...

Question 3

(a) Using appropriate sketches, differentiate the tool position with respect to the rotating work piece for performing 'set datum' for $x = 0$ and $z = \text{diameter of the work piece}$.
(Note: Label your sketch clearly)

[7 marks]

(b) With an aid of a sketch, differentiate between an 'open loop' and 'close loop' control systems.

[8 marks]

(c) Find the correct G codes for 'Canned Cycles' given as below:

- Finishing cycle
- Stock removal in turning
- Multiple facing
- Pattern repeating
- Peck drilling cycle
- Peck grooving cycle
- Multiple threading cycle
- Drilling cycle
- Turning cycle
- Facing cycle

[10 marks]

Question 4

(a) Illustrate the various stages involved on manufacturing of a product in a concurrent engineering environment. Label your illustration neatly.

[7 marks]

(b) One of the important element under the 'Material Handling Systems' is the usage of Automatic Guided Vehicles (AGV) in the manufacturing industry. With a sketch, illustrate the working principle of an AGV.

[10 marks]

(c) In your words, state FOUR benefits of Computer Integrated Manufacturing (CIM).

[8 marks]

End of paper